

**. . . Fire Protection by Computer Design**

EASTERN FIRE PROTECTION  
AUBURN, MAINE  
207-784-1507

Job Name : AMERICAN TIRE DIST  
Drawing : 1 OF 2  
Location : PORTLAND, ME  
Remote Area : SYSTEM#3  
Contract : AU-5258-15  
Data File : 5258 AMERICAN TIRE SYSTEM 3.WXF

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**HYDRAULIC CALCULATIONS**  
*for*

**Project name:** AMERICAN TIRE DIST  
**Location:** PORTLAND, ME  
**Drawing no:** 1 OF 2  
**Date:** 1-19-15

**Design**

**Remote area number:** SYSTEM#3  
**Remote area location:** SYSTEM#3  
**Occupancy classification:**  
**Density:** 25 PSI - Gpm/SqFt  
**Area of application:** 12 HEADS - SqFt  
**Coverage per sprinkler:** N/A - SqFt  
**Type of sprinklers calculated:** TYCO 25.2 ESFR PENDENT  
**No. of sprinklers calculated:** 12  
**In-rack demand:** - GPM  
**Hose streams:** 250 - GPM  
**Total water required (including hose streams):** 1818.34 - GPM @ 107.587 - Psi  
**Type of system:** WET  
**Volume of dry or preaction system:** N/A - Gal

**Water supply information**

**Date:** 12-12-14  
**Location:** FIRE PUMP TEST  
**Source:** EASTERN FIRE PROTECTION

**Name of contractor:** EASTERN FIRE PROTECTION  
**Address:** AUBURN, MAINE  
**Phone number:** 207-784-1507  
**Name of designer:** GRD

**Authority having jurisdiction:** MAINE STATE FIRE MARSHAL

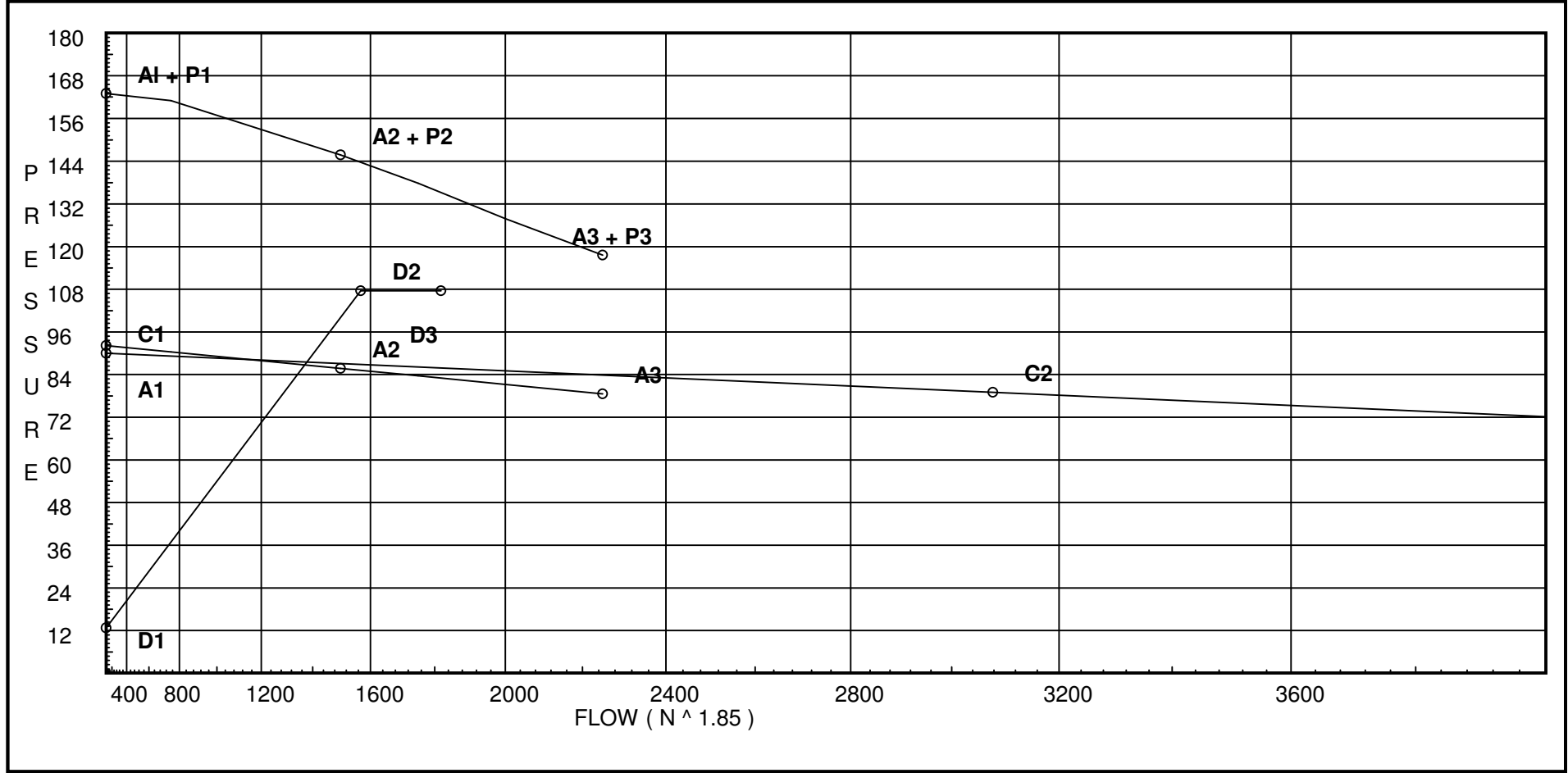
**Notes: (Include peaking information or gridded systems here.)** TOTAL SYSTEM DEMAND AND PRESSURE INDICATED AT DISCHARGE FLANGE OF FIRE PUMP

# Water Supply Curve C

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<b>City Water Supply:</b> C1 - Static Pressure : 90 C2 - Residual Pressure: 79 C2 - Residual Flow : 3078  <b>City Water Adjusted to Pump Inlet for Pf - Elev - Hose Flow</b> A1 - Adjusted Static: 92.166 A2 - Adj Resid : 85.759 @ 1500 A3 - Adj Resid : 78.602 @ 2250	<b>Pump Data:</b> P1 - Pump Churn Pressure : 70.8 P2 - Pump Rated Pressure : 60 P2 - Pump Rated Flow : 1500 P3 - Pump Pressure @ Max Flow : 39 P3 - Pump Max Flow : 2250 City Residual Flow @ 0 = 9587.40 City Residual Flow @ 20 = 8369.59 City Water @ 150% of Pump = 83.84	<b>Demand:</b> D1 - Elevation : 12.776 D2 - System Flow : 1568.34 D2 - System Pressure : 107.587 Hose ( Demand ) : 250 D3 - System Demand : 1818.34 Safety Margin : 27.606
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# Fittings Used Summary

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Fitting Legend		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24	
Aty	Alarm Tyco AV-1								14		23		24	23								
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0	0
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61	61
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13	13
I	90' Grvd-Vic Elbow #10	0	0	2	3	4	3.5	6	5	8	7	8.5	10	13	17	20	23	25	33	36	40	40
L	NFPA 13 Long Turn Elbow	0.5	1	2	2	2	3	4	5	5	6	8	9	13	16	18	24	27	30	34	40	40
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65						
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121	121
Zca	Colt C200 Horz Butt	Fitting generates a Fixed Loss Based on Flow																				

## Units Summary

Diameter Units           Inches  
 Length Units             Feet  
 Flow Units                US Gallons per Minute  
 Pressure Units           Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with \*. The fittings marked with a \* show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a \* will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

**SUPPLY ANALYSIS**

<b>Node at Source</b>	<b>Static Pressure</b>	<b>Residual Pressure</b>	<b>Flow</b>	<b>Available Pressure</b>	<b>Total Demand</b>	<b>Required Pressure</b>
PO	See Information on Pump Curve			135.193	1818.34	107.587
TEST	90.0	79	3078.0	85.846	1818.34	85.846

**NODE ANALYSIS**

<b>Node Tag</b>	<b>Elevation</b>	<b>Node Type</b>	<b>Pressure at Node</b>	<b>Discharge at Node</b>	<b>Notes</b>
300	132.5		51.55		
301	132.67		51.48		
320	132.75		51.44		
302	132.917		51.16		
303	133.083		50.68		
343	133.5		48.92		
500	134.5	25.2	26.04	128.59	
501	134.5	25.2	25.0	126.0	
502	134.25	25.2	25.11	126.27	
503	134.0	25.2	26.42	129.54	
389	133.5		55.13		
304	132.5		51.45		
305	132.67		51.37		
322	132.75		51.34		
306	132.917		50.99		
307	133.083		50.36		
345	133.5		48.03		
504	134.5	25.2	27.8	132.88	
505	134.5	25.2	26.48	129.68	
506	134.25	25.2	26.56	129.87	
507	134.0	25.2	27.69	132.6	
391	133.5		54.81		
308	132.5		52.5		
309	132.67		52.42		
324	132.75		52.39		
310	132.917		52.11		
311	133.083		51.63		
347	133.5		49.87		
508	134.5	25.2	28.7	135.0	
509	134.5	25.2	27.29	131.65	
510	134.25	25.2	27.36	131.81	
511	134.0	25.2	28.47	134.45	
393	133.5		55.72		
326	129.67		55.83		
349	133.5		54.78		
395	133.5		58.29		
327	129.67		56.8		
351	133.5		55.55		

**NODE ANALYSIS (cont.)**

<b>Node Tag</b>	<b>Elevation</b>	<b>Node Type</b>	<b>Pressure at Node</b>	<b>Discharge at Node</b>	<b>Notes</b>
397	133.5		58.7		
328	129.67		57.56		
353	133.5		56.24		
399	133.5		59.1		
329	129.67		58.22		
355	133.5		56.86		
401	133.5		59.52		
330	129.67		58.77		
357	133.5		57.2		
403	133.5		59.89		
331	129.67		59.17		
359	133.5		57.55		
405	133.5		60.1		
332	129.67		59.5		
361	133.5		57.9		
407	133.5		60.25		
333	129.67		59.79		
363	133.5		58.26		
409	133.5		61.12		
334	129.67		60.05		
365	133.5		58.6		
411	133.5		62.34		
335	129.67		60.24		
367	133.5		58.66		
413	133.5		62.45		
336	129.67		60.35		
369	133.5		58.79		
415	133.5		61.92		
337	129.67		60.43		
371	133.5		58.86		
417	133.5		61.59		
338	129.67		60.49		
373	133.5		58.91		
419	133.5		61.33		
339	129.67		60.52		
375	133.5		58.94		
421	133.5		61.16		
340	129.67		60.54		
377	133.5		58.89		
423	133.5		61.06		
341	129.67		60.55		
379	133.5		58.94		
425	133.5		60.94		
342	129.67		60.55		
381	133.5		58.93		
427	133.5		60.72		
321	129.67		53.52		
323	129.67		53.69		

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**NODE ANALYSIS (cont.)**

<b>Node Tag</b>	<b>Elevation</b>	<b>Node Type</b>	<b>Pressure at Node</b>	<b>Discharge at Node</b>	<b>Notes</b>
325	129.67		54.47		
344	130.67		55.32		
346	130.67		55.41		
348	130.67		55.6		
350	130.67		55.87		
352	130.67		56.62		
354	130.67		57.31		
356	130.67		57.93		
358	130.67		58.25		
360	130.67		58.41		
362	130.67		58.83		
364	130.67		59.18		
366	130.67		59.47		
368	130.67		59.59		
370	130.67		59.65		
372	130.67		59.77		
374	130.67		59.85		
376	130.67		59.9		
378	130.67		59.92		
380	130.67		59.93		
390	130.67		59.24		
392	130.67		59.29		
394	130.67		59.39		
396	130.67		59.54		
398	130.67		59.99		
400	130.67		60.49		
402	130.67		61.03		
404	130.67		61.38		
406	130.67		61.62		
408	130.67		62.51		
410	130.67		63.4		
448	130.67		66.56		
412	130.67		65.78		
414	130.67		65.0		
416	130.67		64.65		
418	130.67		63.84		
420	130.67		63.2		
422	130.67		62.69		
424	130.67		62.45		
426	130.67		62.32		
428	129.67		62.43		
429	129.67		61.29		
430	129.67		60.94		
431	129.67		60.93		
432	129.67		60.95		
433	129.67		61.06		
434	129.67		61.26		
435	129.67		61.56		

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**NODE ANALYSIS (cont.)**

<b>Node Tag</b>	<b>Elevation</b>	<b>Node Type</b>	<b>Pressure at Node</b>	<b>Discharge at Node</b>	<b>Notes</b>
436	129.67		61.83		
437	129.67		62.13		
438	129.67		62.53		
439	129.67		62.87		
440	129.67		62.99		
441	129.67		63.0		
442	129.67		62.98		
443	129.67		62.92		
444	129.67		62.84		
445	129.67		62.76		
446	129.67		62.72		
TR3	130.67		69.69		
BR3	101.0		86.58		
UG3	100.0		88.65	250.0	
UG4	100.0		90.48		
50	100.0		90.98		
FLG	100.0		93.63		
PO	100.0		107.59		
PI	100.0		83.02		
BASE	100.0		84.35		
TEST	105.0		85.85		



Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv.	Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
300 to 301	132.500 132.670	.0	0.0	2		0.0	8.330	120	51.550 -0.074			
301 to 320	132.670 132.750	.0	0.0	2	T	12.307	4.125	120	51.476 -0.035			
320 to 321	132.750 129.670		78.59	2	T	12.307	3.000	120	51.442 1.334			Vel = 6.90
321			0.0 78.59						53.524			K Factor = 10.74
320 to 302	132.750 132.917		-78.59	2		0.0	4.208	120	51.442 -0.072			Vel = 6.90
302 to 303	132.917 133.083		-78.59	2		0.0	4.208	-0.0490	-0.206			Vel = 6.90
302 to 303	132.917 133.083		0.0	2		0.0	8.330	120	51.164 -0.072			Vel = 6.90
303 to 343	133.083 133.500		-78.59	2	T	12.307	20.000	120	50.685 -0.181			Vel = 6.90
343 to 344	133.500 130.670		259.02	2	E T	6.153 12.307	4.250 18.460	120	48.924 1.226			Vel = 15.84
344			0.0 180.43						55.317			K Factor = 24.26
343 to 500	133.500 134.500		-259.02	2	T	12.307	38.250	120	48.924 -0.433			Vel = 22.74
500 to 501	134.500 134.500	25.20	128.59	2		0.0	8.330	120	26.040 0.0			Vel = 11.45
501 to 502	134.500 134.250	25.20	126.00	2		0.0	9.080	120	25.000 0.108			Vel = 0.39
502 to 503	134.250 134	25.20	126.27	2		0.0	11.000	120	25.106 0.108			Vel = 10.70
503 to 389	134 133.500	25.20	129.54	2	T	12.307	55.500	120	26.425 0.217			Vel = 22.07
389 to 390	133.500 130.670		251.38	2	E T	6.153 12.307	4.250 18.460	120	55.131 1.226			Vel = 11.55
390			0.0 131.54						59.236			K Factor = 17.09

# Final Calculations - Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
389 to 428	133.500 129.670		119.84 119.84	2 2.157	2T 0.0 0.0	24.613 24.613 52.863	120 0.1067	55.131 1.659 5.641			Vel = 10.52
428			0.0 119.84					62.431			K Factor = 15.17
304 to 305	132.500 132.670	.0	0.0 0.0	2 2.157	0.0 0.0	8.330 0.0 8.330	120 0	51.447 -0.074 0.0			Vel = 0
305 to 322	132.670 132.750	.0	0.0 0.0	2 2.157	T 0.0 0.0	12.307 12.307 16.432	120 0	51.373 -0.035 0.0			Vel = 0
322 to 323	132.750 129.670		92.86 92.86	2 2.157	T 0.0 0.0	12.307 12.307 15.307	120 0.0666	51.339 1.334 1.019			Vel = 8.15
323			0.0 92.86					53.692			K Factor = 12.67
322 to 306	132.750 132.917		-92.86 -92.86	2 2.157	0.0 0.0	4.208 0.0 4.208	120 -0.0668	51.339 -0.072 -0.281			Vel = 8.15
306 to 307	132.917 133.083		0.0 -92.86	2 2.157	0.0 0.0	8.330 0.0 8.330	120 -0.0665	50.986 -0.072 -0.554			Vel = 8.15
307 to 345	133.083 133.500		0.0 -92.86	2 2.157	T 0.0 0.0	12.307 12.307 32.307	120 -0.0665	50.360 -0.181 -2.150			Vel = 8.15
345 to 346	133.500 130.670		281.33 188.47	2 2.157	E T 0.0	6.153 12.307 24.960	120 0.2466	48.029 1.226 6.155			Vel = 16.55
346			0.0 188.47					55.410			K Factor = 25.32
345 to 504	133.500 134.500		-281.33 -281.33	2 2.157	0.0 0.0	38.250 0.0 38.250	120 -0.5174	48.029 -0.433 -19.792			Vel = 24.70
504 to 505	134.500 134.500	25.20	132.88 -148.45	2 2.157	0.0 0.0	8.330 0.0 8.330	120 -0.1586	27.804 0.0 -1.321			Vel = 13.03
505 to 506	134.500 134.250	25.20	129.68 -18.77	2 2.157	0.0 0.0	9.080 0.0 9.080	120 -0.0034	26.483 0.108 -0.031			Vel = 1.65
506 to 507	134.250 134	25.20	129.87 111.1	2 2.157	0.0 0.0	11.000 0.0 11.000	120 0.0928	26.560 0.108 1.021			Vel = 9.75
507 to 391	134 133.500	25.20	132.61 243.71	2 2.157	T 0.0 0.0	12.307 12.307 67.807	120 0.3967	27.689 0.217 26.901			Vel = 21.40

# Final Calculations - Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
391 to 392	133.500 130.670		-110.15 133.56	2 2.157	E T 6.153 12.307 0.0	6.500 18.460 24.960	120 0.1304	54.807 1.226 3.255			Vel = 11.73
392			0.0 133.56					59.288			K Factor = 17.35
391 to 429	133.500 129.670		110.14 110.14	2 2.157	2T 24.613 0.0 0.0	28.250 24.613 52.863	120 0.0913	54.807 1.659 4.826			Vel = 9.67
429			0.0 110.14					61.292			K Factor = 14.07
308 to 309	132.500 132.670	.0	0.0 0.0	2 2.157	0.0 0.0 0.0	8.330 0.0 8.330	120 0	52.498 -0.074 0.0			Vel = 0
309 to 324	132.670 132.750	.0	0.0 0.0	2 2.157	T 12.307 0.0 0.0	4.125 12.307 16.432	120 0	52.424 -0.035 0.0			Vel = 0
324 to 325	132.750 129.670		78.63 78.63	2 2.157	T 12.307 0.0 0.0	3.000 12.307 15.307	120 0.0489	52.390 1.334 0.748			Vel = 6.90
325			0.0 78.63					54.472			K Factor = 10.65
324 to 310	132.750 132.917		-78.63 -78.63	2 2.157	0.0 0.0 0.0	4.208 0.0 4.208	120 -0.0492	52.390 -0.072 -0.207			Vel = 6.90
310 to 311	132.917 133.083		0.0 -78.63	2 2.157	0.0 0.0 0.0	8.330 0.0 8.330	120 -0.0489	52.111 -0.072 -0.407			Vel = 6.90
311 to 347	133.083 133.500		0.0 -78.63	2 2.157	T 12.307 0.0 0.0	20.000 12.307 32.307	120 -0.0489	51.632 -0.181 -1.581			Vel = 6.90
347 to 348	133.500 130.670		288.54 209.91	2 2.157	T 12.307 0.0 0.0	2.670 12.307 14.977	120 0.3010	49.870 1.226 4.508			Vel = 18.43
348			0.0 209.91					55.604			K Factor = 28.15
347 to 508	133.500 134.500		-288.54 -288.54	2 2.157	0.0 0.0 0.0	38.250 0.0 38.250	120 -0.5422	49.870 -0.433 -20.740			Vel = 25.33
508 to 509	134.500 134.500	25.20	135.00 -153.54	2 2.157	0.0 0.0 0.0	8.330 0.0 8.330	120 -0.1688	28.697 0.0 -1.406			Vel = 13.48
509 to 510	134.500 134.250	25.20	131.65 -21.89	2 2.157	0.0 0.0 0.0	9.080 0.0 9.080	120 -0.0045	27.291 0.108 -0.041			Vel = 1.92
510 to 511	134.250 134	25.20	131.80 109.91	2 2.157	0.0 0.0 0.0	11.000 0.0 11.000	120 0.0909	27.358 0.108 1.000			Vel = 9.65

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
511 to 393	134 133.500	25.20	134.46 244.37	2 2.157	T 0.0	12.307 12.307	120 0.3987	28.466 0.217 27.037		Vel = 21.46	
393 to 394	133.500 130.670		-93.47 150.9	2 2.157	T 0.0	12.307 12.307	120 0.1634	55.720 1.226 2.447		Vel = 13.25	
394			0.0 150.90					59.393		K Factor = 19.58	
393 to 430	133.500 129.670		93.46 93.46	2 2.157	2T 0.0	24.613 24.613	120 0.0674	55.720 1.659 3.561		Vel = 8.21	
430			0.0 93.46					60.940		K Factor = 11.97	
326 to 349	129.670 133.500		33.32 33.32	2 2.157	2T 0.0	24.613 24.613	120 0.0100	55.834 -1.659 0.601		Vel = 2.93	
349 to 350	133.500 130.670		-56.04 -22.72	2 2.157	E T 0.0	6.153 12.307 26.460	120 -0.0049	54.776 1.226 -0.130		Vel = 1.99	
350			0.0 -22.72					55.872		K Factor = -3.04	
349 to 395	133.500 133.500		56.04 56.04	2 2.157	T 0.0	12.307 12.307	120 0.0262	54.776 0.0 3.513		Vel = 4.92	
395 to 396	133.500 130.670		-46.58 9.46	2 2.157	E T 0.0	6.153 12.307 24.960	120 0.0010	58.289 1.226 0.024		Vel = 0.83	
396			0.0 9.46					59.539		K Factor = 1.23	
395 to 431	133.500 129.670		46.58 46.58	2 2.157	2T 0.0	24.613 24.613	120 0.0186	58.289 1.659 0.982		Vel = 4.09	
431			0.0 46.58					60.930		K Factor = 5.97	
327 to 351	129.670 133.500		27.26 27.26	2 2.157	2T 0.0	24.613 24.613	120 0.0069	56.798 -1.659 0.415		Vel = 2.39	
351 to 352	133.500 130.670		-52.75 -25.49	2 2.157	E T 0.0	6.153 12.307 26.460	120 -0.0061	55.554 1.226 -0.161		Vel = 2.24	
352			0.0 -25.49					56.619		K Factor = -3.39	
351 to 397	133.500 133.500		52.76 52.76	2 2.157	T 0.0	12.307 12.307	120 0.0234	55.554 0.0 3.141		Vel = 4.63	

# Final Calculations - Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
397 to 398	133.500 130.670		-35.64 17.12	2 2.157	E T 6.153 12.307 0.0	6.500 18.460 24.960	120 0.0029	58.695 1.226 0.073		Vel = 1.50	
398			0.0 17.12					59.994		K Factor = 2.21	
397 to 432	133.500 129.670		35.63 35.63	2 2.157	2T 24.613 0.0	28.250 24.613 52.863	120 0.0113	58.695 1.659 0.598		Vel = 3.13	
432			0.0 35.63					60.952		K Factor = 4.56	
328 to 353	129.670 133.500		24.66 24.66	2 2.157	2T 24.613 0.0	35.580 24.613 60.193	120 0.0057	57.557 -1.659 0.345		Vel = 2.17	
353 to 354	133.500 130.670		-50.15 -25.49	2 2.157	E T 6.153 12.307 0.0	8.000 18.460 26.460	120 -0.0061	56.243 1.226 -0.161		Vel = 2.24	
354			0.0 -25.49					57.308		K Factor = -3.37	
353 to 399	133.500 133.500		50.15 50.15	2 2.157	T 12.307 0.0	122.000 12.307 134.307	120 0.0213	56.243 0.0 2.861		Vel = 4.40	
399 to 400	133.500 130.670		-24.20 25.95	2 2.157	E T 6.153 12.307 0.0	6.500 18.460 24.960	120 0.0063	59.104 1.226 0.157		Vel = 2.28	
400			0.0 25.95					60.487		K Factor = 3.34	
399 to 433	133.500 129.670		24.20 24.2	2 2.157	2T 24.613 0.0	28.250 24.613 52.863	120 0.0055	59.104 1.659 0.292		Vel = 2.12	
433			0.0 24.20					61.055		K Factor = 3.10	
329 to 355	129.670 133.500		23.11 23.11	2 2.157	2T 24.613 0.0	35.580 24.613 60.193	120 0.0051	58.217 -1.659 0.306		Vel = 2.03	
355 to 356	133.500 130.670		-48.19 -25.08	2 2.157	E T 6.153 12.307 0.0	8.000 18.460 26.460	120 -0.0059	56.864 1.226 -0.157		Vel = 2.20	
356			0.0 -25.08					57.933		K Factor = -3.30	
355 to 401	133.500 133.500		48.18 48.18	2 2.157	T 12.307 0.0	122.000 12.307 134.307	120 0.0198	56.864 0.0 2.656		Vel = 4.23	
401 to 402	133.500 130.670		-12.39 35.79	2 2.157	E T 6.153 12.307 0.0	6.500 18.460 24.960	120 0.0114	59.520 1.226 0.284		Vel = 3.14	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
402			0.0 35.79					61.030		K Factor = 4.58	
401 to 434	133.500 129.670		12.40 12.4	2 2.157	2T 0.0	24.613 24.613	28.250 0.0016	120 1.659 0.085		Vel = 1.09	
434			0.0 12.40					61.264		K Factor = 1.58	
330 to 357	129.670 133.500		12.11 12.11	2 2.157	2T 0.0	24.613 24.613	35.580 60.193	120 0.0015	58.766 -1.659 0.093	Vel = 1.06	
357 to 358	133.500 130.670		-48.51 -36.4	2 2.157	T 0.0	12.307 12.307	2.670 14.977	120 -0.0118	57.200 1.226 -0.177	Vel = 3.20	
358			0.0 -36.40					58.249		K Factor = -4.77	
357 to 403	133.500 133.500		48.51 48.51	2 2.157	T 0.0	12.307 12.307	122.000 134.307	120 0.0200	57.200 0.0 2.689	Vel = 4.26	
403 to 404	133.500 130.670		-3.47 45.04	2 2.157	T 0.0	12.307 12.307	2.670 14.977	120 0.0175	59.889 1.226 0.262	Vel = 3.95	
404			0.0 45.04					61.377		K Factor = 5.75	
403 to 435	133.500 129.670		3.47 3.47	2 2.157	2T 0.0	24.613 24.613	28.250 52.863	120 0.0002	59.889 1.659 0.008	Vel = 0.30	
435			0.0 3.47					61.556		K Factor = 0.44	
331 to 359	129.670 133.500		7.63 7.63	2 2.157	2T 0.0	24.613 24.613	35.580 60.193	120 0.0007	59.169 -1.659 0.040	Vel = 0.67	
359 to 360	133.500 130.670		-47.15 -39.52	2 2.157	E T 0.0	6.153 12.307	8.000 18.460 26.460	120 -0.0137	57.550 1.226 -0.363	Vel = 3.47	
360			0.0 -39.52					58.413		K Factor = -5.17	
359 to 405	133.500 133.500		47.15 47.15	2 2.157	T 0.0	12.307 12.307	122.000 134.307	120 0.0190	57.550 0.0 2.552	Vel = 4.14	
405 to 406	133.500 130.670		-10.83 36.32	2 2.157	E T 0.0	6.153 12.307	6.500 18.460 24.960	120 0.0117	60.102 1.226 0.292	Vel = 3.19	
406			0.0 36.32					61.620		K Factor = 4.63	
405 to 436	133.500 129.670		10.83 10.83	2 2.157	2T 0.0	24.613 24.613	28.250 52.863	120 0.0012	60.102 1.659 0.065	Vel = 0.95	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
436			0.0 10.83					61.826		K Factor = 1.38	
332 to 361	129.670 133.500		9.40 9.4	2 2.157	2T 0.0	24.613 24.613	35.580 60.193	120 0.0010	59.502 -1.659 0.058		Vel = 0.83
361 to 362	133.500 130.670		-45.10 -35.7	2 2.157	E T 0.0	6.153 12.307 26.460	8.000 18.460	120 -0.0114	57.901 1.226 -0.301		Vel = 3.13
362			0.0 -35.70					58.826		K Factor = -4.65	
361 to 407	133.500 133.500		45.10 45.1	2 2.157	T 0.0	12.307 12.307	122.000 134.307	120 0.0175	57.901 0.0 2.351		Vel = 3.96
407 to 406	133.500 130.670		-20.49 24.61	2 2.157	E T 0.0	6.153 12.307 24.960	6.500 18.460	120 0.0057	60.252 1.226 0.142		Vel = 2.16
406			0.0 24.61					61.620		K Factor = 3.14	
407 to 437	133.500 129.670		20.49 20.49	2 2.157	2T 0.0	24.613 24.613	28.250 52.863	120 0.0041	60.252 1.659 0.215		Vel = 1.80
437			0.0 20.49					62.126		K Factor = 2.60	
333 to 363	129.670 133.500		14.29 14.29	2 2.157	2T 0.0	24.613 24.613	35.580 60.193	120 0.0021	59.789 -1.659 0.126		Vel = 1.25
363 to 364	133.500 130.670		-50.21 -35.92	2 2.157	E T 0.0	6.153 12.307 26.460	8.000 18.460	120 -0.0115	58.256 1.226 -0.304		Vel = 3.15
364			0.0 -35.92					59.178		K Factor = -4.67	
363 to 409	133.500 133.500		50.22 50.22	2 2.157	T 0.0	12.307 12.307	122.000 134.307	120 0.0213	58.256 0.0 2.867		Vel = 4.41
409 to 410	133.500 130.670		22.28 72.5	2 2.157	E T 0.0	6.153 12.307 24.960	6.500 18.460	120 0.0421	61.123 1.226 1.051		Vel = 6.37
410			0.0 72.50					63.400		K Factor = 9.11	
409 to 438	133.500 129.670		-22.28 -22.28	2 2.157	2T 0.0	24.613 24.613	28.250 52.863	120 -0.0047	61.123 1.659 -0.251		Vel = 1.96
438			0.0 -22.28					62.531		K Factor = -2.82	
334 to 365	129.670 133.500		18.82 18.82	2 2.157	2T 0.0	24.613 24.613	35.580 60.193	120 0.0035	60.047 -1.659 0.209		Vel = 1.65

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
365 to 366	133.500 130.670		-58.01 -39.19	2 2.157	E T 6.153 12.307 0.0	8.000 18.460 26.460	120 -0.0135	58.597 1.226 -0.357		Vel = 3.44	
366			0.0 -39.19					59.466		K Factor = -5.08	
365 to 411	133.500 133.500		58.00 58.0	2 2.157	T 12.307 0.0	122.000 12.307 134.307	120 0.0279	58.597 0.0 3.744		Vel = 5.09	
411 to 412	133.500 130.670		50.33 108.33	2 2.157	E T 6.153 12.307 0.0	6.500 18.460 24.960	120 0.0885	62.341 1.226 2.209		Vel = 9.51	
412			0.0 108.33					65.776		K Factor = 13.36	
411 to 439	133.500 129.670		-50.32 -50.32	2 2.157	2T 24.613 0.0	28.250 24.613 52.863	120 -0.0214	62.341 1.659 -1.133		Vel = 4.42	
439			0.0 -50.32					62.867		K Factor = -6.35	
335 to 367	129.670 133.500		11.09 11.09	2 2.157	2T 24.613 0.0	35.580 24.613 60.193	120 0.0013	60.235 -1.659 0.079		Vel = 0.97	
367 to 368	133.500 130.670		-58.40 -47.31	2 2.157	T 12.307 0.0	2.670 12.307 14.977	120 -0.0192	58.655 1.226 -0.287		Vel = 4.15	
368			0.0 -47.31					59.594		K Factor = -6.13	
367 to 413	133.500 133.500		58.40 58.4	2 2.157	T 12.307 0.0	122.000 12.307 134.307	120 0.0282	58.655 0.0 3.791		Vel = 5.13	
413 to 414	133.500 130.670		49.88 108.28	2 2.157	T 12.307 0.0	2.670 12.307 14.977	120 0.0884	62.446 1.226 1.324		Vel = 9.51	
414			0.0 108.28					64.996		K Factor = 13.43	
413 to 440	133.500 129.670		-49.89 -49.89	2 2.157	2T 24.613 0.0	28.250 24.613 52.863	120 -0.0211	62.446 1.659 -1.116		Vel = 4.38	
440			0.0 -49.89					62.989		K Factor = -6.29	
336 to 369	129.670 133.500		12.62 12.62	2 2.157	2T 24.613 0.0	35.580 24.613 60.193	120 0.0017	60.353 -1.659 0.100		Vel = 1.11	
369 to 370	133.500 130.670		-52.65 -40.03	2 2.157	E T 6.153 12.307 0.0	8.000 18.460 26.460	120 -0.0141	58.794 1.226 -0.372		Vel = 3.51	



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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
370			0.0 -40.03					59.648		K Factor = -5.18	
369 to 415	133.500 133.500		52.66	2	T	12.307 0.0 12.307	122.000 12.307	120 0.0	58.794 0.0		
415 to 416	133.500 130.670		52.66	2.157		0.0 6.153 12.307	134.307 6.500 18.460	0.0233 120 1.226	3.130 61.924 1.226	Vel = 4.62	
416			87.96	2.157		0.0	24.960	0.0602	1.503	Vel = 7.72	
416			0.0 87.96						64.653	K Factor = 10.94	
415 to 441	133.500 129.670		-35.31	2	2T	24.613 0.0 24.613	28.250 24.613	120 1.659	61.924 1.659		
441			-35.31	2.157		0.0	52.863	-0.0111	-0.588	Vel = 3.10	
441			0.0 -35.31						62.995	K Factor = -4.45	
337 to 371	129.670 133.500		11.78	2	2T	24.613 0.0 24.613	35.580 24.613	120 -1.659	60.434 -1.659		
371 to 372	133.500 130.670		11.78	2.157		0.0 6.153 12.307	60.193 8.000 18.460	0.0015 120 1.226	0.088 58.863 1.226	Vel = 1.03	
372			-48.84	2	E T	0.0	26.460	-0.0122	-0.322	Vel = 3.25	
372			0.0 -37.06						59.767	K Factor = -4.79	
371 to 417	133.500 133.500		48.83	2	T	12.307 0.0 12.307	122.000 12.307	120 0.0	58.863 0.0		
417 to 418	133.500 130.670		48.83	2.157		0.0 6.153 12.307	134.307 6.500 18.460	0.0203 120 1.226	2.723 61.586 1.226	Vel = 4.29	
418			22.94	2	E T	0.0	24.960	0.0413	1.032	Vel = 6.30	
418			0.0 71.77						63.844	K Factor = 8.98	
417 to 442	133.500 129.670		-22.94	2	2T	24.613 0.0 24.613	28.250 24.613	120 1.659	61.586 1.659		
442			-22.94	2.157		0.0	52.863	-0.0050	-0.265	Vel = 2.01	
442			0.0 -22.94						62.980	K Factor = -2.89	
338 to 373	129.670 133.500		11.15	2	2T	24.613 0.0 24.613	35.580 24.613	120 -1.659	60.488 -1.659		
373 to 374	133.500 130.670		11.15	2.157		0.0 6.153 12.307	60.193 8.000 18.460	0.0013 120 1.226	0.079 58.908 1.226	Vel = 0.98	
374			-45.78	2	E T	0.0	26.460	-0.0107	-0.284	Vel = 3.04	
374			0.0 -34.63						59.850	K Factor = -4.48	
373 to 419	133.500 133.500		45.79	2	T	12.307 0.0 12.307	122.000 12.307	120 0.0	58.908 0.0		
419			45.79	2.157		0.0	134.307	0.0180	2.418	Vel = 4.02	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
419 to 420	133.500 130.670		10.29 56.08	2 2.157	E T 6.153 12.307 0.0	6.500 18.460 24.960	120 0.0262	61.326 1.226 0.653			Vel = 4.92
420			0.0 56.08					63.205			K Factor = 7.05
419 to 443	133.500 129.670		-10.29 -10.29	2 2.157	2T 24.613 0.0	28.250 24.613 52.863	120 -0.0012	61.326 1.659 -0.061			Vel = 0.90
443			0.0 -10.29					62.924			K Factor = -1.30
339 to 375	129.670 133.500		10.86 10.86	2 2.157	2T 24.613 0.0	35.580 24.613 60.193	120 0.0013	60.520 -1.659 0.076			Vel = 0.95
375 to 376	133.500 130.670		-43.73 -32.87	2 2.157	E T 6.153 12.307 0.0	8.000 18.460 26.460	120 -0.0098	58.937 1.226 -0.259			Vel = 2.89
376			0.0 -32.87					59.904			K Factor = -4.25
375 to 421	133.500 133.500		43.73 43.73	2 2.157	T 12.307 0.0	122.000 12.307 134.307	120 0.0165	58.937 0.0 2.220			Vel = 3.84
421 to 422	133.500 130.670		-6.42 37.31	2 2.157	E T 6.153 12.307 0.0	6.500 18.460 24.960	120 0.0123	61.157 1.226 0.307			Vel = 3.28
422			0.0 37.31					62.690			K Factor = 4.71
421 to 444	133.500 129.670		6.42 6.42	2 2.157	2T 24.613 0.0	28.250 24.613 52.863	120 0.0005	61.157 1.659 0.024			Vel = 0.56
444			0.0 6.42					62.840			K Factor = 0.81
340 to 377	129.670 133.500		4.54 4.54	2 2.157	2T 24.613 0.0	35.580 24.613 60.193	120 0.0002	60.537 -1.659 0.015			Vel = 0.40
377 to 378	133.500 130.670		-43.18 -38.64	2 2.157	T 12.307 0.0	2.670 12.307 14.977	120 -0.0132	58.893 1.226 -0.197			Vel = 3.39
378			0.0 -38.64					59.922			K Factor = -4.99
377 to 423	133.500 133.500		43.18 43.18	2 2.157	T 12.307 0.0	122.000 12.307 134.307	120 0.0161	58.893 0.0 2.169			Vel = 3.79
423 to 424	133.500 130.670		-8.61 34.57	2 2.157	T 12.307 0.0	2.670 12.307 14.977	120 0.0107	61.062 1.226 0.160			Vel = 3.04

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
424			0.0 34.57					62.448		K Factor = 4.37	
423 to 445	133.500 129.670		8.60 8.6	2 2.157	2T 0.0	24.613 24.613	28.250 52.863	120 0.0008	61.062 1.659 0.043		Vel = 0.76
445			0.0 8.60					62.764		K Factor = 1.09	
341 to 379	129.670 133.500		9.34 9.34	2 2.157	2T 0.0	24.613 24.613	35.580 60.193	120 0.0009	60.547 -1.659 0.057		Vel = 0.82
379 to 380	133.500 130.670		-41.25 -31.91	2 2.157	E T 0.0	6.153 12.307 26.460	8.000 18.460	120 -0.0092	58.945 1.226 -0.244		Vel = 2.80
380			0.0 -31.91					59.927		K Factor = -4.12	
379 to 425	133.500 133.500		41.26 41.26	2 2.157	T 0.0	12.307 12.307	122.000 134.307	120 0.0148	58.945 0.0 1.993		Vel = 3.62
425 to 426	133.500 130.670		-15.07 26.19	2 2.157	E T 0.0	6.153 12.307 24.960	6.500 18.460	120 0.0064	60.938 1.226 0.160		Vel = 2.30
426			0.0 26.19					62.324		K Factor = 3.32	
425 to 446	133.500 129.670		15.07 15.07	2 2.157	2T 0.0	24.613 24.613	28.250 52.863	120 0.0023	60.938 1.659 0.122		Vel = 1.32
446			0.0 15.07					62.719		K Factor = 1.90	
342 to 381	129.670 133.500		8.09 8.09	2 2.157	2T 0.0	24.613 24.613	35.580 60.193	120 0.0007	60.549 -1.659 0.044		Vel = 0.71
381 to 382	133.500 0		-38.94 -30.85	2 2.157	E T 0.0	6.153 12.307 26.460	8.000 18.460	120 -0.0087	58.934 57.819 -0.230		Vel = 2.71
382			0.0 -30.85					116.523		K Factor = -2.86	
381 to 427	133.500 133.500		38.94 38.94	2 2.157	T 0.0	12.307 12.307	122.000 134.307	120 0.0133	58.934 0.0 1.791		Vel = 3.42
427 to 428	133.500 129.670		-25.29 13.65	2 2.157	E T 0.0	6.153 12.307 24.960	6.500 18.460	120 0.0019	60.725 1.659 0.047		Vel = 1.20
428			0.0 13.65					62.431		K Factor = 1.73	
427 to 447	133.500 0		25.29 25.29	2 2.157	2T 0.0	24.613 24.613	28.250 52.863	120 0.0060	60.725 57.819 0.317		Vel = 2.22

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
			0.0 25.29					118.861		K Factor = 2.32	
321 to 323	129.670 129.670		78.59 78.59	2.5 2.635	0.0 0.0	9.083 9.083	120 0.0185	53.524 0.168		Vel = 4.62	
323 to 325	129.670 129.670		92.86 171.45	2.5 2.635	0.0 0.0	10.000 10.000	120 0.0780	53.692 0.780		Vel = 10.09	
325 to 326	129.670 129.670		78.62 250.07	2.5 2.635	0.0 0.0	8.670 8.670	120 0.1571	54.472 1.362		Vel = 14.71	
326 to 327	129.670 129.670		-33.31 216.76	2.5 2.635	0.0 0.0	8.000 8.000	120 0.1205	55.834 0.964		Vel = 12.75	
327 to 328	129.670 129.670		-27.27 189.49	2.5 2.635	0.0 0.0	8.083 8.083	120 0.0939	56.798 0.759		Vel = 11.15	
328 to 329	129.670 129.670		-24.66 164.83	2.5 2.635	0.0 0.0	9.083 9.083	120 0.0727	57.557 0.660		Vel = 9.70	
329 to 330	129.670 129.670		-23.11 141.72	2.5 2.635	0.0 0.0	10.000 10.000	120 0.0549	58.217 0.549		Vel = 8.34	
330 to 331	129.670 129.670		-12.11 129.61	2.5 2.635	0.0 0.0	8.670 8.670	120 0.0465	58.766 0.403		Vel = 7.63	
331 to 332	129.670 129.670		-7.63 121.98	2.5 2.635	0.0 0.0	8.000 8.000	120 0.0416	59.169 0.333		Vel = 7.18	
332 to 333	129.670 129.670		-9.40 112.58	2.5 2.635	0.0 0.0	8.000 8.000	120 0.0359	59.502 0.287		Vel = 6.62	
333 to 334	129.670 129.670		-14.30 98.28	2.5 2.635	0.0 0.0	9.250 9.250	120 0.0279	59.789 0.258		Vel = 5.78	
334 to 335	129.670 129.670		-18.81 79.47	2.5 2.635	0.0 0.0	10.000 10.000	120 0.0188	60.047 0.188		Vel = 4.68	
335 to 336	129.670 129.670		-11.09 68.38	2.5 2.635	0.0 0.0	8.250 8.250	120 0.0143	60.235 0.118		Vel = 4.02	
336 to 337	129.670 129.670		-12.62 55.76	2.5 2.635	0.0 0.0	8.330 8.330	120 0.0097	60.353 0.081		Vel = 3.28	
337 to 338	129.670 129.670		-11.78 43.98	2.5 2.635	0.0 0.0	8.500 8.500	120 0.0064	60.434 0.054		Vel = 2.59	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
338 to 339	129.670 129.670		-11.15 32.83	2.5 2.635	0.0 0.0	8.670 0.0	120 0.0037	60.488 0.0			
									Vel =	1.93	
339 to 340	129.670 129.670		-10.87 21.96	2.5 2.635	0.0 0.0	10.000 0.0	120 0.0017	60.520 0.0			
									Vel =	1.29	
340 to 341	129.670 129.670		-4.53 17.43	2.5 2.635	0.0 0.0	8.330 0.0	120 0.0012	60.537 0.0			
									Vel =	1.03	
341 to 342	129.670 129.670		-9.34 8.09	2.5 2.635	0.0 0.0	8.000 0.0	120 0.0002	60.547 0.0			
									Vel =	0.48	
342			0.0 8.09					60.549	K Factor =	1.04	
344 to 346	130.670 130.670		180.43 180.43	4 4.26	0.0 0.0	11.250 0.0	120 0.0083	55.317 0.0			
									Vel =	4.06	
346 to 348	130.670 130.670		188.47 368.9	4 4.26	0.0 0.0	6.250 0.0	120 0.0310	55.410 0.0			
									Vel =	8.30	
348 to 350	130.670 130.670		209.91 578.81	4 4.26	0.0 0.0	3.750 0.0	120 0.0715	55.604 0.0			
									Vel =	13.03	
350 to 352	130.670 130.670		-22.72 556.09	4 4.26	0.0 0.0	11.250 0.0	120 0.0664	55.872 0.0			
									Vel =	12.52	
352 to 354	130.670 130.670		-25.49 530.6	4 4.26	0.0 0.0	11.330 0.0	120 0.0608	56.619 0.0			
									Vel =	11.94	
354 to 356	130.670 130.670		-25.48 505.12	4 4.26	0.0 0.0	11.250 0.0	120 0.0556	57.308 0.0			
									Vel =	11.37	
356 to 358	130.670 130.670		-25.08 480.04	4 4.26	0.0 0.0	6.250 0.0	120 0.0506	57.933 0.0			
									Vel =	10.81	
358 to 360	130.670 130.670		-36.40 443.64	4 4.26	0.0 0.0	3.750 0.0	120 0.0437	58.249 0.0			
									Vel =	9.99	
360 to 362	130.670 130.670		-39.52 404.12	4 4.26	0.0 0.0	11.250 0.0	120 0.0367	58.413 0.0			
									Vel =	9.10	
362 to 364	130.670 130.670		-35.70 368.42	4 4.26	0.0 0.0	11.330 0.0	120 0.0311	58.826 0.0			
									Vel =	8.29	
364 to 366	130.670 130.670		-35.93 332.49	4 4.26	0.0 0.0	11.250 0.0	120 0.0256	59.178 0.0			
									Vel =	7.48	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
366 to 368	130.670 130.670		-39.19 293.3	4 4.26	0.0 0.0	6.330 0.0	120 0.0202	59.466 0.0			
									Vel =	6.60	
368 to 370	130.670 130.670		-47.30 246.0	4 4.26	0.0 0.0	3.670 3.670	120 0.0147	59.594 0.0			
									Vel =	5.54	
370 to 372	130.670 130.670		-40.04 205.96	4 4.26	0.0 0.0	11.250 0.0	120 0.0106	59.648 0.0			
									Vel =	4.64	
372 to 374	130.670 130.670		-37.05 168.91	4 4.26	0.0 0.0	11.330 11.330	120 0.0073	59.767 0.0			
									Vel =	3.80	
374 to 376	130.670 130.670		-34.64 134.27	4 4.26	0.0 0.0	11.330 11.330	120 0.0048	59.850 0.0			
									Vel =	3.02	
376 to 378	130.670 130.670		-32.86 101.41	4 4.26	0.0 0.0	6.250 6.250	120 0.0029	59.904 0.0			
									Vel =	2.28	
378 to 380	130.670 130.670		-38.64 62.77	4 4.26	0.0 0.0	3.750 3.750	120 0.0013	59.922 0.0			
									Vel =	1.41	
380 to 382	130.670 0		-31.92 30.85	4 4.26	0.0 0.0	11.250 11.250	120 0.0003	59.927 56.593			
									Vel =	0.69	
382			0.0 30.85								
								116.523	K Factor =	2.86	
390 to 392	130.670 130.670		131.54 131.54	4 4.26	0.0 0.0	11.250 11.250	120 0.0046	59.236 0.0			
									Vel =	2.96	
392 to 394	130.670 130.670		133.56 265.1	4 4.26	0.0 0.0	6.250 6.250	120 0.0168	59.288 0.0			
									Vel =	5.97	
394 to 396	130.670 130.670		150.90 416.0	4 4.26	0.0 0.0	3.750 3.750	120 0.0389	59.393 0.0			
									Vel =	9.36	
396 to 398	130.670 130.670		9.46 425.46	4 4.26	0.0 0.0	11.250 11.250	120 0.0404	59.539 0.0			
									Vel =	9.58	
398 to 400	130.670 130.670		17.12 442.58	4 4.26	0.0 0.0	11.330 11.330	120 0.0435	59.994 0.0			
									Vel =	9.96	
400 to 402	130.670 130.670		25.95 468.53	4 4.26	0.0 0.0	11.250 11.250	120 0.0483	60.487 0.0			
									Vel =	10.55	
402 to 404	130.670 130.670		35.79 504.32	4 4.26	0.0 0.0	6.250 6.250	120 0.0555	61.030 0.0			
									Vel =	11.35	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
404 to 406	130.670 130.670		45.04 549.36	4 4.26	0.0 0.0	3.750 0.0	120 0.0648	61.377 0.0			
406 to 408	130.670 130.670		60.93 610.29	4 4.26	0.0 0.0	11.250 11.250	120 0.0788	61.620 0.887		Vel = 12.37	
408 to 410	130.670 130.670		0.0 610.29	4 4.26	0.0 0.0	11.330 11.330	120 0.0788	62.507 0.893		Vel = 13.74	
410 to 448	130.670 130.670		72.51 682.8	4 4.26	T 0.0	26.334 26.334	120 0.0970	63.400 0.0			Vel = 15.37
448 to 412	130.670 130.670		-1568.34 -885.54	4 4.26	0.0 0.0	5.000 5.000	120 -0.1570	66.561 -0.785		Vel = 19.93	
412 to 414	130.670 130.670		108.33 -777.21	4 4.26	0.0 0.0	6.330 6.330	120 -0.1232	65.776 -0.780		Vel = 17.49	
414 to 416	130.670 130.670		108.28 -668.93	4 4.26	0.0 0.0	3.670 3.670	120 -0.0935	64.996 -0.343		Vel = 15.06	
416 to 418	130.670 130.670		87.96 -580.97	4 4.26	0.0 0.0	11.250 11.250	120 -0.0719	64.653 -0.809		Vel = 13.08	
418 to 420	130.670 130.670		71.77 -509.2	4 4.26	0.0 0.0	11.330 11.330	120 -0.0564	63.844 -0.639		Vel = 11.46	
420 to 422	130.670 130.670		56.08 -453.12	4 4.26	0.0 0.0	11.330 11.330	120 -0.0455	63.205 -0.515		Vel = 10.20	
422 to 424	130.670 130.670		37.31 -415.81	4 4.26	0.0 0.0	6.250 6.250	120 -0.0387	62.690 -0.242		Vel = 9.36	
424 to 426	130.670 130.670		34.57 -381.24	4 4.26	0.0 0.0	3.750 3.750	120 -0.0331	62.448 -0.124		Vel = 8.58	
426 to 428	130.670 129.670		26.19 -355.05	4 4.26	0.0 0.0	11.250 11.250	120 -0.0290	62.324 0.433		Vel = 7.99	
428			0.0 -355.05					62.431		K Factor = -44.94	
428 to 429	129.670 129.670		-221.55 -221.55	2.5 2.635	0.0 0.0	9.083 9.083	120 -0.1254	62.431 -1.139		Vel = 13.03	
429 to 430	129.670 129.670		110.14 -111.41	2.5 2.635	0.0 0.0	10.000 10.000	120 -0.0352	61.292 -0.352		Vel = 6.55	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
430 to 431	129.670 129.670		93.46 -17.95	2.5 2.635	0.0 0.0	8.670 0.0	120 -0.0012	60.940 0.0		Vel = 1.06	
431 to 432	129.670 129.670		46.58 28.63	2.5 2.635	0.0 0.0	8.000 8.000	120 0.0028	60.930 0.0		Vel = 1.68	
432 to 433	129.670 129.670		35.64 64.27	2.5 2.635	0.0 0.0	8.083 8.083	120 0.0127	60.952 0.0		Vel = 3.78	
433 to 434	129.670 129.670		24.20 88.47	2.5 2.635	0.0 0.0	9.083 9.083	120 0.0230	61.055 0.0		Vel = 5.21	
434 to 435	129.670 129.670		12.39 100.86	2.5 2.635	0.0 0.0	10.000 10.000	120 0.0292	61.264 0.0		Vel = 5.93	
435 to 436	129.670 129.670		3.48 104.34	2.5 2.635	0.0 0.0	8.670 8.670	120 0.0311	61.556 0.0		Vel = 6.14	
436 to 437	129.670 129.670		10.82 115.16	2.5 2.635	0.0 0.0	8.000 8.000	120 0.0375	61.826 0.0		Vel = 6.78	
437 to 438	129.670 129.670		20.50 135.66	2.5 2.635	0.0 0.0	8.000 8.000	120 0.0506	62.126 0.0		Vel = 7.98	
438 to 439	129.670 129.670		-22.29 113.37	2.5 2.635	0.0 0.0	9.250 9.250	120 0.0363	62.531 0.0		Vel = 6.67	
439 to 440	129.670 129.670		-50.33 63.04	2.5 2.635	0.0 0.0	10.000 10.000	120 0.0122	62.867 0.0		Vel = 3.71	
440 to 441	129.670 129.670		-49.88 13.16	2.5 2.635	0.0 0.0	8.250 8.250	120 0.0007	62.989 0.0		Vel = 0.77	
441 to 442	129.670 129.670		-35.31 -22.15	2.5 2.635	0.0 0.0	8.330 8.330	120 -0.0018	62.995 0.0		Vel = 1.30	
442 to 443	129.670 129.670		-22.93 -45.08	2.5 2.635	0.0 0.0	8.500 8.500	120 -0.0066	62.980 0.0		Vel = 2.65	
443 to 444	129.670 129.670		-10.29 -55.37	2.5 2.635	0.0 0.0	8.670 8.670	120 -0.0097	62.924 0.0		Vel = 3.26	
444 to 445	129.670 129.670		6.41 -48.96	2.5 2.635	0.0 0.0	10.000 10.000	120 -0.0076	62.840 0.0		Vel = 2.88	



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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv. Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
445 to 446	129.670 129.670		8.61 -40.35	2.5 2.635	0.0 0.0	8.330 0.0	120 -0.0054	62.764 0.0		Vel = 2.37	
446 to 447	129.670 0		15.06 -25.29	2.5 2.635	0.0 0.0	8.000 8.000	120 -0.0022	62.719 56.160		Vel = 1.49	
447			0.0 -25.29					118.861		K Factor = -2.32	
448 to TR3	130.670 130.670		1568.34 1568.34	6 6.357	I 0.0	12.573 12.573	120 0.0643	66.561 0.0		Vel = 15.85	
TR3 to BR3	130.670 101		0.0 1568.34	6 6.357	Aty G	30.176 3.772	29.000 33.948	120 12.850		Vel = 15.85	
BR3 to UG3	101 100		0.0 1568.34	8 7.98	E T G	27.183 52.855 6.041	30.000 86.077 116.077	150 0.0141	86.585 0.433 1.633	Vel = 10.06	
UG3 to 50	100 100	H250	-124.80 1443.54	8 7.98	T	52.855 0.0	140.000 52.855	150 0.0121	88.651 0.0	Vel = 9.26	
50			0.0 1443.54					90.978		K Factor = 151.34	
UG3 to UG4	100 100		374.80 374.8	8 7.98	6L 3G	117.791 18.122	1700.000 135.913	150 0.0010	88.651 0.0	Vel = 2.40	
UG4 to 50	100 100		0.0 374.8	8 7.98	2T 2L G	105.71 39.264 6.041	350.000 151.014 501.014	150 0.0010	90.479 0.0 0.499	Vel = 2.40	
50 to FLG	100 100		1443.54 1818.34	8 7.98	2E T G	54.365 52.855 6.041	30.000 113.260 143.260	150 0.0185	90.978 0.0 2.649	Vel = 11.66	
FLG to PO	100 100		0.0 1818.34	8 8.249	S B 6l Zca	52.853 14.094 91.611 0.0	149.000 158.558 307.558	120 0.0238	93.627 6.647 7.313	** Fixed Loss = 6.647 Vel = 10.92	
PO			0.0 1818.34					107.587		K Factor = 175.31	
System Demand Pressure								107.587			
Safety Margin								27.606			
Continuation Pressure								135.193			
Pressure @ Pump Outlet								135.193			
Pressure From Pump Curve								-52.173			
Pressure @ Pump Inlet								83.020			
PI to BASE	100 100		0.0 1818.34	8 8.249	G T	4.698 41.108	10.000 45.806	120 0.0238	83.020 0.0	Vel = 10.92	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqv.	Ln.	Pipe Ftng's Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
BASE to TEST	100 105		0.0 1818.34	8 7.98	2L T G	39.264 52.855 6.041	100.000 98.159 198.159	150 0.0185	84.347 -2.166 3.665		Vel = 11.66	
TEST			0.0 1818.34						85.846		K Factor = 196.25	